

FISHERIES

The John Day River basin provides habitat for 29 documented species of native and non-native fish populations. Five of the native species are “special status species” including: Middle Columbia distinct population segment (DPS) summer steelhead DPS (*Oncorhynchus mykiss*) listed under the Endangered Species Act (1973) as Threatened (12/23/05), bull trout (*Salvelinus confluentus*) as Threatened (6/10/98), interior redband trout DPS (12/23/05) (*Oncorhynchus mykiss*) as sensitive, westslope cutthroat trout (*Oncorhynchus clarki lewisi*) as sensitive and Pacific lamprey (*Lampetra tridentata*) as sensitive. Chinook salmon (*Oncorhynchus tshawytscha*) is an important native game species that spawns in the John Day basin.

Information on trends and distribution has focused primarily on anadromous (sea run) salmonids, and to a lesser extent on resident salmonids and warm water game species. Native and introduced non-game species populations and distribution have generally not been assessed. Introduced game species typically have been analyzed to determine if the introduction was successful and if so what fishery could be sustained.

FALL RUN PACIFIC LAMPREY AND CHINOOK SALMON

Pacific lamprey and a small run of fall Chinook salmon in the lower John Day River are species of interest in the John Day system. Although these runs have been less extensively monitored than other runs, restoration efforts designed to protect and restore habitat for spring Chinook salmon and summer steelhead will benefit these anadromous species and native resident species in the John Day River System.

SPRING CHINOOK AND SUMMER STEELHEAD

The John Day River system supports one of the few remaining wild runs of Spring Chinook salmon (Lindsey et al. 1986, OWRD 1986, Quigley and Arbelbide 1997) and summer steelhead (Quigley and Arbelbide 1997, OWRD 1986) in the Columbia Basin, providing approximately 117 miles of spawning habitat for spring Chinook and 1,800 miles for summer steelhead (ODFW 1997).

Salmonid habitat is similar for the various species. Summer steelhead spawn in cool, clear streams with suitable gravel (pea size to marble size), depth and current velocity. Steelhead enter streams and arrive at spawning grounds weeks or even months before they spawn and are vulnerable to disturbance and predation during this time. Eggs hatch in 30 to 60 days depending on water temperature. Fry emerge from the gravel and within a few days absorb the yolk sack and become free swimming. Rearing habitat is cool, clean water with an optimum temperature of 55 degrees Fahrenheit. Channel structure includes pools and riffle/glides with adequate depth and overhead cover (vegetation, banks and/or woody debris). Vegetation near the channel is desirable to reduce solar radiation and also provided a food base for aquatic and terrestrial insects that, in turn, serve as a food for fish. Summer steelhead begin to spawn as the temperature of the water warms and approaches optimal levels in spring to early summer depending on elevations.

Chinook salmon spawning habitat is similar to that used by steelhead although ideal gravels are golf-ball to baseball sized. Spring Chinook spawn in the fall and eggs overwinter in the gravel with emergence occurring in the spring. Rearing occurs in the

natal streams or adjacent cool water tributaries. Rearing habitats are the same as for steelhead and juvenile out migration occurs the following winter/spring on high flows.

The productivity of these populations is determined by the number of returning adults. Index reaches have been established by ODFW throughout the basin. These index reaches are monitored each year to determine the number of redds (spawning nests) and then extrapolated to an estimate of the number of returning adults. Table 9 displays the annual production goals for spring chinook salmon and summer steelhead.

Populations of desired fish species are the product of habitat features needed for the life stages from egg to maturity. Within the John Day basin, stream/river habitats offer suitable gravel for spawning, adequate high quality water for rearing and good flows for migrations. Out of basin influences such as hydroelectric dams, ocean conditions, harvest and predation play a vital role in the number of Chinook salmon and steelhead returning to the John Day basin.

Key Habitat quantity is a limiting factor for approximately 95 percent of the geographic areas for both Chinook salmon and summer steelhead. Key habitat quality refers to the key habitat type required of each life stage for each species. The John Day Basin Plan from the Northwest Power and Conservation Council identified channelization of streams and rivers, habitat diversity, water temperature, sediment load, and flow as limiting factors for steelhead and Chinook in their key habitats. (John Day Basin Revised Draft Plan 2005)

The lower 200 of miles of the John Day River functions primarily as a migration corridor for anadromous salmonids. Tributary streams in this portion of the basin accounts for an estimated 6 percent of the steelhead production in the John Day basin. A small run of fall Chinook salmon utilize the lower segment up towards Cottonwood Bridge for spawning (OWRD 1986). The upper mainstem John Day river and/or tributaries) produce an estimated 18 percent of the spring Chinook salmon and 16 percent of the summer steelhead in the John Day basin (OWRD 1986). Increasing population trends since 1959 for spring Chinook salmon are indicated in the upper mainstem John Day sub-basin. These trends are attributed to management and restoration efforts implemented over the last few decades (ODFW 1997). The South Fork sub-basin produces approximately 7 percent of the summer steelhead population in the John Day basin (OWRD 1986). The North Fork and Middle Fork John Day sub-basins produce approximately 82 percent of the spring Chinook salmon and 73 percent of the summer steelhead population in the John Day basin (OWRD 1986). There has been no sport fishing of spring Chinook salmon since 1977, and the steelhead fishery has been limited to the catch and release of "wild" (non-adipose fin clipped) fish from 1996 to the present. Steelhead production takes place in the tributaries and headwaters of the river, mostly outside the river corridor (John Day River Proposed Management Plan 2002).

Table 9: Average Annual Goals for Spring Chinook Salmon and Summer Steelhead

Species	Sport and tribal Harvest Estimates	Natural Reproduction Escapement Estimates	Total Escapement Goal	Average Escapement 1989-1998
Spring Chinook Salmon	1,050	5,950	7,000	2,310
Summer Steelhead	11,250	33,750	45,000	8,370

Source: ODFW (1990)

RESIDENT SALMONIDS

Several species of resident salmonids inhabit the John Day River system. Interior Redband trout (Behnke 1992) occur throughout the basin primarily occupying river habitats in the upper subbasins and tributary habitats. Hatchery supplementation with rainbow trout occurred prior to 1986 but with the “wild fish policy” ODFW no longer releases hatchery fish in streams associated with the John Day River. One native subspecies of cutthroat trout, Westslope (*Oncorhynchus clarki lewisi*), is found in tributary streams of the upper mainstem John Day River. Westslope cutthroat were introduced in 1960 from Deardorff Creek to Clear Creek and South Fork Desolation Creek in the North Fork John Day subbasin. Yellowstone cutthroat (*Oncorhynchus clarki bouvieri*) and Lahonton cutthroat (*Oncorhynchus clarki hendersoni*) were stocked in certain North Fork John Day reservoirs in the past.

Resident trout and Westslope cutthroat, like steelhead, spawn in the spring. Gravel size is smaller and depends on the size of the spawners. Resident trout can mature and spawn at 7-8 inches in length and continue spawning with increased growth. Incubation period is temperature dependent. Rearing habitats are similar to steelhead but typically upstream of these areas.

Rainbow trout were planted in various streams and ponds in the John Day Subbasin beginning in 1925 and periodically continued through 1997. Some streams only received one planting while other streams received 147. The streams where rainbow trout were consistently stocked include Canyon Creek and the John Day River in the upper mainstem watershed; and Camas Creek, Desolation Creek and North Fork John Day River in the North Fork watershed (Northwest Power and Conservation Council, 2005). ODFW’s “wild fish” policy suspended stocking in all streams, however, some ponds/reservoirs with a stream outlet were stocked until 2001. These plantings were designed for a “put and take” sport fishery and ODFW determined the risk was low that survivors from these plantings would interbreed with native populations (Unterwegner, 2006).

Westslope cutthroat trout (WCT) probably never were widely distributed in the Blue Mountains or Columbia Plateau. Productivity has been adequate to sustain localized migratory and isolated populations, resulting in current populations thought to be fairly secure. However, this conclusion must be tempered by uncertainty regarding the genetic integrity of remaining populations. Most current wild populations are depressed. Hybridization, fragmentation and loss of migratory populations have limited healthy populations to a much smaller proportion of their historical range. Further, competition with introduced rainbow and brook trout has impacted the ability of the species to fully occupy its natural niche in the ecosystem (John Day Basin Revised Draft Plan 2005).

Bull trout were listed as threatened on June 10, 1998 (63 FR 31647). The John Day basin is included in the Columbia River Distinct Population Segment (DPS). Within the basin, eleven existing local populations (or stocks) were identified. Three subbasins, North Fork John Day, Middle Fork John Day and mainstem John Day each contain a Core Area, meaning the fish from the area spawn in a particular stream, at a particular season, and which to a substantial degree do not interbreed with any group spawning at a different place, or in the same place at a different season. All spawning occurs in cooler headwater segments of the three subbasins. The various down river segments including BLM land are utilized as winter rearing/foraging habitat. Presently, bull trout occur in 45 percent of their historical range (Quigley and Arbelbide 1997) The North Fork and mainstem John Day populations are considered to be at moderate risk of extinction and the Middle Fork John Day are at high risk of extinction (Ratcliff and Howell 1992).

Bull trout reach maturity at sizes similar to resident trout but are fall spawners. Substrate is normally smaller, clean gravels in headwater reaches. Bull trout prefer sites with upwelling rather than the typical pool tail area of other salmonids. Preferred temperatures in these headwater streams are cooler with the optimum about 45 degrees F. Rearing habitats are similar but productivity is greater in habitats with an abundance of woody debris.

Although Bull Trout historically occurred throughout the John Day Subbasin, they were probably never as abundant as other salmonids in the subbasin. It is certain that they were more abundant and more widely distributed then they are today. The current distribution of bull trout is clearly fragmented (Howell and Buchanan 1992). In the winter of 2004, ODFW documented subadult bull trout movement in the mainstem John Day River down to the National Park Service Interpretive Center (RM 203) and in the Middle Fork to the hot springs at Ritter (RM 15). Recent survey work by Oregon Department of Fish and Wildlife ((Hemmingsen *et al* 2001) detected bull trout in the mainstem John Day River at river mile 170 near the town of Spray, downstream of the confluence with the North Fork John Day. Two bull trout were radio tagged and tracked upstream during the summer. (John Day Basin Revised Draft Plan 2005). Both fish entered the North Fork, one traveling 112 mile over a period of 77 days, the other 137 miles into the tributary of Granite Creek to mile 3.8. Presence of bull trout at Spray confirm there is a component of movement along the rivers to the local population in both the North Fork and mainstem John Day Rivers. These fish utilize the lower river segments as winter foraging habitat which include segments flowing through public lands.

INTRODUCED SMALLMOUTH BASS AND CHANNEL CATFISH

The John Day River also supports an increasingly popular warm water sport fishery. A review of habitat requirements revealed the river exhibits good conditions for both smallmouth bass (*Micropterus dolomieu*) and channel catfish (*Ictalurus punctatus*). Upon assurance that warm water species predation on salmonids would be minimal, these species were introduced into the John Day River below Kimberly (RM 185) in the early 1970s (ODFW 1999). Smallmouth bass are distributed throughout the mainstem from the mouth to Picture Gorge (RM 205), the North Fork from the mouth to Desolation Creek (RM60, and the Middle Fork from the mouth to Big Creek (RM 39). This species appears to be increasing upstream distribution by adapting to marginal habitat conditions higher in the basin. Diet studies support the theory that smallmouth bass in the John Day are a minimal risk to migrating salmonids. Smallmouth bass have successfully filled a niche in the John Day River, which has developed into a nationally recognized sport fishery.

TERRESTRIAL WILDLIFE

The John Day Basin contains a rich wildlife population. Wildlife within the basin utilize habitats that range from dense moist forest to dry shrub and grasslands. There are 378 terrestrial species that utilize the Blue Mountains. Fifty-one of these species migrate through or are occasional visitors in the Blue Mountains (Thomas, 1979). There is one Federally listed species with reproductive habitat, one Federally listed species with incidental and dispersal habitat, one formerly listed species, two candidates for Federal listing, 21 Bureau Sensitive Species, 6 Bureau Assessment Species, and 37 Bureau Tracking Species (Appendix B). Mule deer (*Odocoileus hemionus*) and elk (*Cervus elephus*) are considered locally important species. Additionally there are numerous neotropical migratory bird and upland game birds.